

## ABSTRACT OF THE DISCLOSURE

The invention provides a simple circuit configuration that can convert a current  $I_1$  to a current  $I_2$  having smooth, non-linear characteristics. The invention can include first and second resistors having one end of each of the resistors, whose resistances are different, connected to a power supply terminal to which a power supply voltage is supplied. The source of a first transistor can be coupled to the other end of the resistor, and is also connected to a gate in a saturating manner. The source of a second transistor is connected to the other end of the other resistor, and a gate of the second transistor is coupled to the gate of the first transistor, which is connected to a drain thereof in a saturating manner. The current  $I_2$  flowing in a second transistor is a function equal to the square of the current  $I_1$  flowing in the first transistor, thereby exhibiting smooth, non-linear characteristics.